



AN ISO 9001 : 2008 COMPANY & NABL ACCREDITED LABORATORY AS PER ISO/IEC 17025:2005

4, 7TH MAIN MALLESWARAM, BANGALORE -3

Certificate No.: T-4358

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID : CP-2017-06-12-07 Date: 14-06-2017
 Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
 Address : Kodigehalli sub division, BBMP, Bangalore.
 Project Name : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-560092
 Agency : Improvements to roads in Kashinagar to Hottappa layout in Ward no.07
 Kodigehalli Sub division.
 Customer's Reference : BBMP/EE/BTP/WO/47/2017-18
 Source of Sample : Sample supplied by Agency
 Sample Condition : Satisfactory
 Date of Receipt : 12-06-17
 Sample ID No : 2017-06-12-07/01
 Sample Type : Birla Super 53grade
 Reference to BIS codes : IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification ,
 IS 4031 (Part 1,2 3,4,5, 6,11):1988
 IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4
 IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5
 IS 4031 Part 3, Determination of Soundness, Clause 5, Clause 6
 IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5
 IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5
 IS 4031 Part 11, DETERMINATION OF DENSITY , Clause 6
 Date of test : 13-06-17

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	Fineness by dry sieving (%)	3.05	—
2	Finess by Air permeablity method (m ² /kg, Min)	288.5	225m ² /kg, Min
3	Density (gm/cc)	3.31	—
4	Standard Consistency (%)	28.0%	Not specified
5	Initial Setting time	240 minutes	Not less than 30 minutes
6	Final Setting time	270 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1.5mm	Not more than 10 mm

Note:

The results pertain to the samples received and tested.
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Prepared by
 Harshitha



FOR CIVIL Pro.
 R. Karthik Rechan
 Authorized Signatory
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AG 27
 Assistant Executive Engineer,
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Lab ID : CP-2017-06-12-07 **Date:** 12-06-2017

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Project Name : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-560092

Agency : Improvements to roads in Kashinagar to Hottappa layout in Ward no.07 Kodigehalli Sub division.

Customer's Reference : BBMP/EE/BTP/WO/47/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 12-06-17

Sample ID No : 2017-06-12-07/01

Sample Type : Birla Super 53grade

Reference to BIS codes : IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification ,
IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5
IS 4031 Part 6, Determination of Compressive Strength, Clause 6

Date of test : 13-06-17

Compressive Strength			
Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	3 Days	28.5 N/mm ²	Not less than 27 N/mm ²
2	7 Days	39.5 N/mm ²	Not less than 37 N/mm ²
3	28 Days	56.0 N/mm ²	Not less than 53 N/mm ²

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Certificate No.: T- 4358

TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2017-06-12-07 Date: 16-06-2017

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli sub division, BBMP, Bangalore.

Agency : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-560092

Project Name : Improvements to roads in Kashinagar to Hottappa layout in Ward no.07 Kodigehalli Sub division.

Customer's Reference : BBMP/EE/BTP/WO/47/2017-18

Source of Sample : Sample supplied by Agency

Sample condition : Satisfactory

Date of Receipt : 12-06-17

Sample ID No : 2017-06-12-07/02

Sample Type : 40mm down size coarse aggregate

Reference to BIS codes : IS: 383 - 1970 (RA2016) (Specification for Coarse and fine Aggregates from natural sources for concrete)
IS: 2386 :1963(Part - 1, 2, 3) RA2011
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 2: Estimation of Deleterious Materials and Organic Impurities.
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption

Date of test : 12-06-17

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken: 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:1970
1	80 mm	0	0	0	100	100
2	40 mm	210	210	1.4	98.6	95-100
3	20 mm	4866	5076	33.8	66.2	30-70
4	10 mm	6954	12030	80.2	19.8	10-35
5	4.75 mm	2388	14418	96.1	3.9	0-5
6	Pan	582	15000	100.0	0.0	---

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Certificate No.: T- 4358

TEST REPORT ON COARSE AGGREGATES

Lab ID : CP-2017-06-12-07

Date: 16-06-2017

Sample ID No : 2017-06-12-07/02

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-1970
1	Flakiness Index(%)	13.5	—
2	Elongation Index(%)	12.1	—
3	Specific Gravity	2.65	—
4	Bulk Density(Loose) (Kg/l)	1.54	—
5	Bulk Density(Compacted) (Kg/l)	1.6	—
6	Water Absorption(%)	0.2	—

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Handwritten notes in green ink:
16/07/17
R
15g/100g = 15g/100g
100g/100g = 100g/100g
100g/100g = 100g/100g
100g/100g = 100g/100g
Bangalore



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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Certificate No.: T- 4358

TEST REPORT OF FINE AGGREGATE

Lab ID : CP-2017-06-12-07 Date: 14-06-17

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli sub division, BBMP, Bangalore.

Project Name : Improvements to roads in Kashinagar to Hottappa layout in Ward no.07 Kodigehalli Sub division.

Agency : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-560092

Customer's Reference : BBMP/EE/BTP/WO/47/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 12-06-17

Sample ID No : 2017-06-12-07/03

Sample Type : Fine Aggregate

Reference to BIS codes : IS: 383 - 1970 (RA2016) (Specification for Coarse and fine Aggregates from natural sources for concrete)
IS: 2386 :1963(Part - 1, 2, 3) RA2011
IS 2386 Part 1: Particle Size and Shape
IS 2386 Part 2: Estimation of Deleterious Materials and Organic Impurities.
IS 2386 Part 3: Specific gravity, Density, Voids, Water Absorption

Date of test : 12-06-17

Total weight taken : 1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:1970			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0	100	100	100	100	100
2	4.75 mm	79	79	7.9	92.1	90-100	90-100	90-100	95-100
3	2.36 mm	238	317	31.7	68.3	60-95	75-100	85-100	95-100
4	1.18 mm	342	659	65.9	34.1	30-70	55-90	75-100	90-100
5	600 micron	159	818	81.8	18.2	15-34	35-59	60-79	80-100
6	300 micron	101	919	91.9	8.1	5-20	8-30	12-40	15-50
7	150 micron	49	968	96.8	3.2	0-10	0-10	0-10	0-15
8	Pan	32	1000	100	0	---	---	---	---

Result : The tested Sample Conforms to Grading Zone I

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TEST REPORT OF FINE AGGREGATE

Lab ID : CP-2017-06-12-07

Date: 14-06-17

Sample ID No : 2017-06-12-07/03

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-1970 (RA2016)
1	Water Absorption(%)	1.42	—
2	Specific Gravity	2.52	—
3	Material finer than 75 micron(%)	4.1	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Certificate No.: T- 4358

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2017-06-22-05 Date: 27-06-17

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli sub division, BBMP, Bangalore.

Project Name : Improvements to roads in Kashinagar to Hottappa layout in Ward no.07 Kodigehalli Sub division.

Agency : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-560092

Customer's Reference : BBMP/EE/BTP/WO/47/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 22-06-17

Sample ID No : 2017-06-22-05/01

Customer ID : Drain Concrete

Sample Type /Size : CC Cube (150X150X150 mm)

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 27/06/2017

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Concrete	M20	20/06/2017	27/06/2017	150.44 X 150.34 X 150.87	22617	8.150	395.8	17.5	17.2
2	Drain Concrete	M20	20/06/2017	27/06/2017	150.21 X 150.21 X 150.29	22563	8.218	388.1	17.2	
3	Drain Concrete	M20	20/06/2017	27/06/2017	150.77 X 150.35 X 150.89	22668	8.299	380.8	16.8	

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Certificate No.: T- 4358

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : CP-2017-06-22-05 Date: 18-07-17

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli sub division, BBMP, Bangalore.

Project Name : Improvements to roads in Kashinagar to Hottappa layout in Ward no.07 Kodigehalli Sub division.

Agency : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-560092

Customer's Reference : BBMP/EE/BTP/WO/47/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 22-06-17

Sample ID No : 2017-06-22-05/02

Customer ID : Drain Concrete

Sample Type /Size : CC Cube (150X150X150 mm)

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 27/06/2017

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen	Cross sectional area	Weight of the sample	Failure Load	Compressive strength	Average Compressive Strength
					(mm)	(Sq.mm)	(kg)	(KN)	(N/mm ²)	(N/mm ²)
1	Drain Concrete	M20	20/06/2017	18/07/2017	150.37 X 150.24 X 150.22	22592	8.220	551.2	24.4	24.0
2	Drain Concrete	M20	20/06/2017	18/07/2017	150.46 X 150.32 X 150.98	22617	8.298	536.0	23.7	
3	Drain Concrete	M20	20/06/2017	18/07/2017	150.26 X 150.89 X 150.23	22673	8.398	541.9	23.9	

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Certificate No.: T-4358

TEST REPORT ON BITUMEN

Lab ID : CP-2017-06-26-07 Date: 28-06-17
Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore
Address : Kodigehalli sub division, BBMP, Bangalore.
Project Name : Improvements to roads in Kashinagar to Hottappa layout in Ward no.07 Kodigehalli Sub division.
Agency : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-560092
Customer Reference : BBMP/EE/BTP/WO/47/2017-18
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 26-06-17
Sample ID No : 2017-06-26-07/01
Sample Type : Bitumen
Reference to BIS codes : IS: 1201-1220(1978) (Reaffirmed-2004)
Date of test : 27-06-17

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	88.5	60 to 70
2	Softening Point, °C	44.2°C	Min. 40°C
3	Ductility, cm	90 cm	Min. 75cm
4	Flash point, °C	240°C	Min. 220°C
	Fire point, °C	306°C	

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST RESULTS OF GRADATION FOR WMM

Lab ID : CP-RW-2017-06-23-01 Date: 24-06-17
Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address : Kodigehalli sub division, BBMP, Bangalore.
Agency : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-560092
Project Name : Improvements to roads in Kashinagara to Hottappa layout in Ward no.07 Kodigehalli Sub division.
Customer Reference : BBMP/EE/BTP/WO/47/2017-18
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 23-06-17
Sample ID No : 2017-06-23-01/01
Type of Mix : WMM (Wet Mix Macadam)
Date of test : 23-06-17
Oven Dry Weight(gm) : 12000

IS Sieve Size(mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Spec.I.Vide Table 400.11 MORTH Specification
53	0	0	0	100.0	100
45	305	305	2.54	97.5	95-100
22.4	3122	3427	28.56	71.4	60-80
11.2	2543	5970	49.75	50.3	40-60
4.75	2543	8513	70.94	29.1	25-40
2.36	1387	9900	82.50	17.5	15-30
0.6	910	10810	90.08	9.9	8-22
0.075	890	11700	97.50	2.5	0-8

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Certificate No.: T- 4358

DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007))

Lab ID : CP-RW-2017-06-23-01 **Date:** 24-06-2017
Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address : Kodigehalli sub division, BBMP, Bangalore.
Project Name : Improvements to roads in Kashinagar to Hottappa layout in Ward no.07 Kodigehalli Sub division.
Agency : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-560092
Customer Reference : BBMP/EE/BTP/WO/47/2017-18
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 23-06-17
Sample ID No : 2017-06-23-01/01
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Date of test : 23-06-17

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	12.5%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	14.2%	
Combined Flakiness and Elongation Index for WMM	26.7%	

Note:-

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Certificate No.: T- 4358

TEST REPORT OF AGGREGATE IMPACT VALUE
IS: 2386 Part IV

Lab ID : CP-RW-2017-06-23-01 Date: 24-06-17
Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address : Kodigehalli sub division, BBMP, Bangalore.
Project Name : Improvements to roads in Kashinagar to Hottappa layout in Ward no.07
Kodigehalli Sub division.
Agency : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-560092
Customer Reference : BBMP/EE/BTP/WO/47/2017-18
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 23-06-17
Sample ID No : 2017-06-23-01/01
Type of Mix : Coarse Aggregate for WMM (Wet Mix Macadam)
Date of test : 23-06-17

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	305.9	305.2
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	70.9	64.0
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	234.8	240.5
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.2	0.7
5	Aggregate impact value	(B/A)*100	23.2	21.0
6	Aggregate impact value (Mean of two tests)	Pecentage	22.1	

Note:-

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

**TEST RESULTS OF GRADATION FOR BM
(IS 2386:(Part 1) 1963 (RA2011))**

Lab ID : CP-RW-2017-06-29-01 Date: 01-07-17
Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address : Kodigehalli sub division, BBMP, Bangalore.
Project Name : Improvements to roads in Kashinagar to Hottappa layout in Ward no.07
Kodigehalli Sub division.
Agency : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-560092
Customer Reference : BBMP/EE/BTP/WO/47/2017-18
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 29-06-17
Sample ID No : 2017-06-29-01/01
Type of Mix : BM-Plant (Bituminous Macadam)
Date of test : 29-06-17
Weight of Sample(gm) : 5000

IS Sieve Size(mm)	Weight Retained(gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-7(grading -2)
26.5	0	0	0	100	100
19	155	155	3.1	96.9	90-100
13.2	623	778	15.6	84.4	56-88
4.75	2172	2950	59.0	41.0	16-36
2.36	1364	4314	86.3	13.7	4-19
0.3	287	4601	92.0	8.0	2-10
0.075	143	4744	94.9	5.1	0-8
PAN	256	5000	100.0	0	0

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Certificate No.: T-4358

SPECIFIC GRAVITY AND WATER ABSORPTION TEST IS:2386 Part III

Lab ID : CP-RW-2017-06-29-01 **Date:** 01-07-17

Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.

Address : Kodigehalli sub division, BBMP, Bangalore.

Project Name : Improvements to roads in Kashinagar to Hottappa layout in Ward no.07
Kodigehalli Sub division.

Agency : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-560092

Customer Reference : BBMP/EE/BTP/WO/47/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 29-06-17

Sample ID No : 2017-06-29-01/01

Type of Mix : Coarse Aggregate for BM (Bituminous Macadam)

Date of test : 29-06-17

Sl.No	Details of Observations	Index	Unit	Test 1	Test 2	Mean Value
1	Weight of Wet aggregates + Basket suspended in water	A1	grams	2287	2256	
2	Weight of Empty Basket suspended in water	A2	grams	791	791	
3	Weight of Aggregates in water	A=A1-A2	grams	1496	1465	
4	Weight of Saturated Surface Dry aggregate	B	grams	2392	2365	
5	Weight of oven dried aggregate	C	grams	2387	2360	
6	Specific gravity	C/(B-A)		2.66	2.62	2.64
7	Apparent Specific gravity	C/(C-A)		2.68	2.64	2.66
8	Water absorption	100*(B-C)/C	Percent	0.21	0.21	0.21

Note:-

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Certificate No.: T-4358

DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS 2386 (Part 1) 1963 (RA 2007)

Lab ID : CP-RW-2017-06-29-01 Date: 01-07-17
 Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
 Address : Kodigehalli sub division, BBMP, Bangalore.
 Agency : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-560092
 Project Name : Improvements to roads in Kashinagar to Hottappa layout in Ward no.07 Kodigehalli Sub division.
 Customer Reference : BBMP/EE/BTP/WO/47/2017-18
 Source of Sample : Sample supplied by Agency
 Sample Condition : Satisfactory
 Date of Receipt : 29-06-17
 Sample ID No : 2017-06-29-01/01
 Type of Mix : Coarse Aggregate for BM (Bituminous Macadam)
 Date of test : 29-06-17

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 500-6
Flakiness Index	12.6%	Combined Flakiness & Elongation Index for BM is Maximum 35%
Elongation Index	11.8%	
Combined Flakiness and Elongation Index for BC	24.4%	

Note:-

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Certificate No.: T-4358

TESTS RESULTS ON AGGREGATE IMPACT VALUE (IS:2386 Part IV)

Lab ID : CP-RW-2017-06-29-01 Date: 01-07-17
Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address : Kodigehalli sub division, BBMP, Bangalore.
Agency : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-560092
Project Name : Improvements to roads in Kashinagar to Hottappa layout in Ward no.07 Kodigehalli Sub division.
Customer Reference : BBMP/EE/BTP/WO/47/2017-18
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 29-06-17
Sample ID No : 2017-06-29-01/01
Type of Mix : BM (Bituminous Mecadam)
Date of test : 29-06-17

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	301.7	301.5
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	61.9	63.8
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	239.6	237.3
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.2	0.4
5	Aggregate impct value	(B/A)*100	20.5	21.2
6	Aggregate impct value (Mean of two tests)		20.8	

Note:-

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TEST RESULTS OF STEEL

Lab ID : CP-2017-06-12-07 Date: 14-06-17
Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address : Kodigehalli sub division, BBMP, Bangalore.
Project Name : Improvements to roads in Kashinagar to Hottappa layout in Ward no.07
Kodigehalli Sub division.
Agency : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-560092
Customer's Reference : BBMP/EE/BTP/WO/47/2017-18
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 12-06-17
Sample ID No : 2017-06-12-07/04
Sample Type : JSW
Reference to BIS codes : IS 1786-2008, IS:1608-2005(RA 2011), IS 1599-2012.
Date of test: : 13-06-17

Sl.No	Identification of sample	Grade of the sample	Diameter of the steel bar	Weight of the sample	Yield stress	Tensile strength	Elongation	Bend test	Rebend test
			(mm)	(kg/m)	(N/mm ²)	(N/mm ²)	(%)		
1	JSW	Fe500	8	0.391	562	671	21.0%	Satisfactory	Satisfactory
2	JSW	Fe500	10	0.614	578	689	19.0%	Satisfactory	Satisfactory

Note:

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TESTS RESULTS ON AGGREGATE IMPACT VALUE (IS:2386 Part IV)

Lab ID : CP-RW-2017-07-10-01 Date: 13-07-17
Customer : Asisstant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address : Kodigehalli Sub Division, BBMP, Bangalore.
Agency : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-560092
Project Name : Improvements to roads in Kashinagar to Hottappa layout in Ward no.07 Kodigehalli Sub division.
Customer Reference : BBMP/EE/BTP/WO/47/2017-18
Source of Sample : Hot Mix Plant, Bangalore
Sample Condition : Satisfactory
Date of Receipt : 10-07-17
Sample ID No : 2017-07-10-01/01
Type of Mix : Coarse Aggregate for BC (Bituminous Concrete)
Date of test : 10-07-17

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	315.1	315.0
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	65.9	67.5
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	248.6	246.8
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.6	0.7
5	Aggregate impct value	(B/A)*100	20.9	21.4
6	Aggregate impct value (Mean of two tests)		21.2	

Note:-

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TESTS RESULTS ON STABILITY OF MIX

Lab ID : CP-RW-2017-07-10-01 **Date:** 13-07-17
Customer : Asisstant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address : Kodigehalli Sub Division, BBMP, Bangalore.
Agency : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-560092
Project Name : Improvements to roads in Kashinagar to Hottappa layout in Ward no.07 Kodigehalli Sub division.
Customer Reference : BBMP/EE/BTP/WO/47/2017-18
Source of Sample : Hot Mix Plant, Bangalore
Sample Condition : Satisfactory
Date of Receipt : 10-07-17
Sample ID No : 2017-07-10-01/01
Type of Mix : Coarse Aggregate for BC (Bituminous Concrete)
Date of test : 10-07-17

The results of the tests conducted on the Bituminous Concrete mix sample are as follow				
Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.14	11.03	10KN(min)
2	Marshal flow at 60°C, mm	3.52	3.61	2-4
3	Percent air Voids	4.82	4.73	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.28	14.16	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.87	70.63	65-75
6	Density, g/cc	2.35	2.36	—

Note:-

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**TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE
(IS:6241)**

Lab ID : CP-RW-2017-07-10-01 Date: 13-07-17
Customer : Asisstant Executive Engineer, Kodigehalli Sub Division, BBMP,
Bangalore.
Address : Kodigehalli Sub Division, BBMP, Bangalore.
Project Name : Improvements to roads in Kashinagar to Hottappa layout in Ward
no.07 Kodigehalli Sub division.
Agency : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-
560092
Customer Reference : BBMP/EE/BTP/WO/47/2017-18
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 10-07-17
Sample ID No : 2017-07-10-01/01
Type of Mix : BC(Bitumenous Concrete)
Date of test : 10-07-17

Type of Binder : 60/70
% of Binder Used : 5.0%
Weight of Aggregate : 200.0 gm
Weight of Binder : 10.0 gm
Temperature of water bath : 40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.0	2.0	98.2	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

Note:

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**TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2007)**

Lab ID : CP-RW-2017-07-10-01 Date: 13-07-17
Customer : Asisstant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address : Kodigehalli Sub Division, BBMP, Bangalore.
Project Name : Improvements to roads in Kashinagar to Hottappa layout in Ward no.07
Kodigehalli Sub division.
Agency : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-560092
Customer Reference : BBMP/EE/BTP/WO/47/2017-18
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 10-07-17
Sample ID No : 2017-07-10-01/01
Type of Mix : BC-Plant (Bituminous Concrete)
Date of test : 10-07-17
Oven Dry Weight(gm) : 5000

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	86	86	1.7	98.3	90-100
9.5	710	796	15.9	84.1	70-88
4.75	997	1793	35.9	64.1	53-71
2.36	876	2669	53.4	46.6	42-58
1.18	501	3170	63.4	36.6	34-48
0.6	498	3668	73.4	26.6	26-38
0.3	286	3954	79.1	20.9	18-28
0.15	329	4283	85.7	14.3	12-20
0.075	350	4633	92.7	7.3	4-10
PAN	367	5000	100	0.0	0

Note:

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Certificate No.: T- 4358

DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE (IS:2386 Part 1)

Lab ID : CP-RW-2017-07-10-01 Date: 13-07-17
Customer : Asisstant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address : Kodigehalli Sub Division, BBMP, Bangalore.
Project Name : Improvements to roads in Kashinagar to Hottappa layout in Ward no.07 Kodigehalli Sub division.
Agency : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-560092
Customer Reference : BBMP/EE/BTP/WO/47/2017-18
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 10-07-17
Sample ID No : 2017-07-10-01/01
Type of Mix : BC (Bituminous Concrete)
Date of test : 10-07-17

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 500-16
Flakiness Index	10.5%	Combined Flakiness & Elongation Index for BC is Maximum 35%
Elongation Index	8.2%	
Combined Flakiness and Elongation Index for BC	18.7%	

Note:

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Certificate No.: T-4358

SPECIFIC GRAVITY AND WATER ABSORPTION TEST
(IS:2386 Part III)

Lab ID : CP-RW-2017-07-10-01 **Date:** 13-07-17
Customer : Asisstant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address : Kodigehalli Sub Division, BBMP, Bangalore.
Agency : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-560092
Project Name : Improvements to roads in Kashinagar to Hottappa layout in Ward no.07 Kodigehalli Sub division.
Customer Reference : BBMP/EE/BTP/WO/47/2017-18
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 10-07-17
Sample ID No : 2017-07-10-01/01
Type of Mix : BC (Bituminous Concrete)
Date of test : 10-07-17

Sl.No	Details of Observations	Index	Unit	Test 1	Test 2	Mean Value
1	Weight of Wet aggregates + Basket suspended in water	A1	grams	2245	2261	
2	Weight of Empty Basket suspended in water	A2	grams	791	791	
3	Weight of Aggregates in water	A=A1-A2	grams	1454	1470	
4	Weight of Saturated Surface Dry aggregate	B	grams	2365	2379	
5	Weight of oven dried aggregate	C	grams	2360	2372	
6	Specific gravity	C/(B-A)		2.59	2.61	2.60
7	Apparent Specific gravity	C/(C-A)		2.60	2.63	2.62
8	Water absorption	100*(B-C)/C	Percent	0.21	0.30	0.25

Note:-

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HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL |
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4, 7TH MAIN MALLESWARAM, BANGALORE -3

TEST RESULTS OF GRADATION FOR BM IS 2386 (Part 1) 1963 (RA 2007)

Lab ID : CP-RW-2017-07-17-01 Date: 19-07-17
Customer : Assistant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address : Kodigehalli sub division, BBMP, Bangalore.
Project Name : Improvements to roads in Kashinagar to Hottappa layout in Ward no.07
Kodigehalli Sub division.
Agency : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-560092
Customer Reference : BBMP/EE/BTP/WO/47/2017-18
Source of Sample : Sample supplied by Agency
Sample Condition : Satisfactory
Date of Receipt : 17-07-17
Sample ID No : 2017-07-17-01/01
Type of Mix : BM (Bituminous Macadam)
Date of test : 18-07-17

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	500
2	Weight of the sample After extraction	B	483	482
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	3.40	3.60
4	Average percentage	%	3.50	

Prepared By:
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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Lab ID : CP-RW-2017-07-17-01 Date: 19-07-17

Sample ID No : 2017-07-17-01/01

AFTER EXTRACTION(Trail-1)

Oven Dry Weight(gm) : 483

IS Sieve Size(mm)	Weight Retained(gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-7(grading -2)
26.5	0	0	0	100	100
19	15	15	3.1	96.9	90-100
13.2	65	80	16.6	83.4	56-88
4.75	256	336	69.6	30.4	16-36
2.36	87	423	87.6	12.4	4-19
0.3	27	450	93.2	6.8	2-10
0.075	10	460	95.2	4.8	0-8

AFTER EXTRACTION(Trail-2)

Oven Dry Weight(gm) : 482

IS Sieve Size(mm)	Weight Retained(gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-7(grading -2)
26.5	0	0	0	100	100
19	14	14	2.9	97.1	90-100
13.2	72	86	17.8	82.2	56-88
4.75	242	328	68.0	32.0	16-36
2.36	84	412	85.5	14.5	4-19
0.3	44	456	94.6	5.4	2-10
0.075	20	476	98.8	1.2	0-8

Note:-

The results pertain to the samples received and tested.

All information furnished by Customer/Representative

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Samples will be disposed after 30 days from the date of issue of test certificate

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4, 7TH MAIN MALLESWARAM, BANGALORE -3

**TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)**

Lab ID : CP-RW-2017-07-20-01 **Date:** 21-07-17
Customer : Asisstant Executive Engineer, Kodigehalli Sub Division, BBMP, Bangalore.
Address : Kodigehalli Sub Division, BBMP, Bangalore.
Project Name : Improvements to roads in Kashinagar to Hottappa layout in Ward no.07 Kodigehalli Sub division.
Agency : Sri.M. Prakash, #136, Kashinagara main road, Amruthahalli, Bangalore-560092
Customer Reference : BBMP/EE/BTP/WO/47/2017-18
Source of Sample : Sample supplied by Agency
Date of Receipt : 20-07-17
Sample ID No : 2017-07-20-01/01
Type of Mix : BC (Bituminous Concrete)
Date of test : 20-07-17

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	500	501
2	Weight of the sample After extraction	B	472	474
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	5.6	5.4
4	Average percentage	%	5.5	

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AGW.7
2
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4, 7TH MAIN MALLESWARAM, BANGALORE -3

Lab ID : CP-RW-2017-07-20-01

Date: 21-07-17

Sample ID : 2017-07-20-01/01

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 472

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	11	11	2.3	97.7	90-100
9.5	66	77	16.3	83.7	70-88
4.75	87	164	34.7	65.3	53-71
2.36	102	266	56.4	43.6	42-58
1.18	24	290	61.4	38.6	34-48
0.6	32	322	68.2	31.8	26-38
0.3	30	352	74.6	25.4	18-28
0.15	28	380	80.5	19.5	12-20
0.075	55	435	92.2	7.8	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 474

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-23(grading-2)
19	0	0	0.0	100.0	100
13.2	14	14	3.0	97.0	90-100
9.5	82	96	20.3	79.7	70-88
4.75	116	212	44.7	55.3	53-71
2.36	61	273	57.6	42.4	42-58
1.18	29	302	63.7	36.3	34-48
0.6	45	347	73.2	26.8	26-38
0.3	25	372	78.5	21.5	18-28
0.15	21	393	82.9	17.1	12-20
0.075	42	435	91.8	8.2	4-10

Note:

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All information furnished by Customer/Representative

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Samples will be disposed after 30 days from the date of issue of test certificate

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